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AUTHOR Burmester, Allan
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ABSTRACT

A project was conducted to revise an existing office occupations curriculum to incorporate the use of telecommunications into simulated office practice and to train teachers in the use of equipment required to implement the updated curriculum. During the first phase of the project, teachers from two high schools in the school district designed the office simulation they wished to implement. Next, they met with a computer specialist to determine what hardware and software were obtained, and the teachers were given instruction in the use of the equipment. After students received initial training using the system, the teachers met with the computer specialist again and the course procedures were revised. As a result of this development effort, a group of high school students were trained to use word processing software to generate business documents and process them via telecommunications through the various departments of a simulated business. Both the teachers and students who participated in the pilot testing of the curriculum found it to be a valuable learning experience. (Appendixes to this report include a list of hardware and software used during the project, the macro string used, and a sample invoice generated by students completing the simulation.) (MN)

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TELECOMMUNICATIONS

FINAL REPORT
Project No. 84-AWC(232)NB

Curriculum Development Project
Conducted Under Public Law 94-482

Allan Burmester
Vocational Education Director
North Thurston School District
6202 Pacific Avenue S.E.
Lacey, Washington 98503

November 1, 1984

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Research Coordinating Unit
WASHINGTON STATE COMMISSION FOR VOCATIONAL EDUCATION
OLYMPIA, WASHINGTON 98504

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The project reported herein was performed pursuant to a grant from the Research Coordinating Unit of the Washington State Commission for Vocational Education. Contractors undertaking such projects under the Commission for Vocational Education sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Commission for Vocational Education position or policy.

Allan Burmester

North Thurston School District, Lacey, Washington

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SUMMARY

Time line

The time period covered by the report was May 1, 1984, to September 30, 1984. May through the end of August was spent on research and development. September was used to implement the project in the classroom.

Objectives

1. Teachers will develop curriculum to include the use of telecommunications in the existing simulated office classes.

2. Teachers will be trained in the use of the required equipment.

Procedures

Business and office teachers from the district's two high schools met to revise the curriculum to provide students with opportunities to use telecommunications equipment in a simulated office environment. After designing the program they wished to implement, they met with the district computer specialist to provide information with which to determine what hardware and software would be needed. Once the hardware was acquired and the software modifications made, the teachers were given instruction with the equipment. After students received initial training using the system, the teachers met with the computer specialist; and procedures were revised to reflect the experience gained.

Results

During the initial period covered by this report, students used word processing software on a microcomputer to generate business documents that were processed via telecommunications through the various departments of a simulated business.

Problem

Communications skills required in the office environment are, with increasing frequency, including the relatively new area of telecommunications. The North Thurston School District's Business and Office Advisory Committee has stated that in order to maintain the district's commitment to training students in current job skills, telecommunications training is vital to the curriculum.

As stated in the original proposal, attempts to secure information on telecommunications training from other business and office programs were unsuccessful. A search of the literature and a subsequent ERIC search were also unproductive. We were unable to locate curriculum materials that could be used to develop skills in data transmission via computer.

Objectives

The stated goal of the project was to revise the business and office curriculum to reflect the role of telecommunications equipment in the office environment. The ultimate goal, however, was for the student to become aware of that role and to gain experience using the equipment. Planning to achieve the goals resulted in the following objectives:

Objective 1. Teachers from the two high schools will develop the curriculum changes necessary to include the use of telecommunications in the existing simulated office classes. They will develop a needs assessment and communicate the results to the school district's computer specialist.

Objective 2. Teachers will be trained in the use of computer communications software and hardware.

Project Description

Selected business and office staff from both schools met to discuss practical applications for telecommunications in the simulated office curriculum. Areas in the office procedures class that were considered included: inventory, accounts receivables, accounts payables, payroll, purchase

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Purchase order transmission/receipt

1. Check printer, paper supply, etc.
2. Connect computer to telephone lines.
3. Insert correct data disk.
4. Boot appropriate program.
5. Monitor to see that transmission is proceeding correctly.
6. After transmission is complete, verify that correct data was sent.
7. Turn off and disconnect equipment.
8. Store data sent in order to protect audit trail.

Purchase order processing

1. Sales department of receiving school must carefully edit and record purchase orders. If order cannot be processed for any reason, it is returned to sending school.
2. Shipping order is prepared.
3. Purchase order is filed.

This system is used by male and female business and office students (grades 10-12) with a wide variety of skills, abilities and backgrounds. Student populations range from the disadvantaged and handicapped to the gifted. Students' typing skills ranged from no typing skill to third-year skill level. Word processing skills vary from no experience through introduction to or thorough knowledge of a word processing program for the microcomputer to full training on a dedicated word processor. Computer familiarity ranged from none to advanced data processing.

Capabilities and characteristics of participating teachers vary. Data processing background ranged from basic computer literacy to advanced data processing. Although transfer of skills on dedicated word processors was helpful, it was not a requirement; and the teachers had only a basic familiarity with the Apple Writer word processing software.

In addition to the instructional staff, a computer specialist was available who had the time to gain knowledge and understanding of using the modem for telecommunications. This person was essential in staff training, program development, implementation and coordination.

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Conclusions and Recommendations

1. Not only is inclusion of telecommunications training desirable in the high school classroom, it is totally feasible to do so.

2. By limiting the initial scope of the project to just one operation,instructors and students were able to experience immediate success with a minimum of frustration. Start small!

3. The success of this project has encouraged us to consider transfer of the telecommunications training to many other areas of the business and office curriculum: business English, advanced typing, word processing, data processing, accounting, general clerical, and secretarial.

4. Selected staff needs to be familiar with, though not highly trained in, computers, software, etc. This will make the implementation of such a project much easier and much more immediately successful.

5. Selected staff needs to be open to the use of such a system, and staff members must be able to cooperate with not only teachers in their own building, but the other building as well. Constant and quality communication is essential to make such a system work.

6. Initially, students selected to train on the system should be the more capable ones. If a student has a data processing background, this can be helpful. The first students selected should also have well-developed communications skills to facilitate their training of other students.

7. The system should be in a secured area, with a telephone nearby designated specifically for communication between the two schools. This telephone should be strictly for problems and concerns arising with the use of the modem.

8. A coordinator between the two schools (in our case, the district computer specialist) is essential to the smooth implementation of the process. This person is essential as a resource--our project could not have been done without a person with excellent computer knowledge.

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Appendix A

Hardware and Software

The following hardware and software were acquired for each high school. There are numerous other combinations of equipment and software which would provide equal service and we make no attempt to list them here.

Hardware : Apple IIe microcomputer
Hayes Micromodem IIe
Apple DMP Printer
Dual disk drives

Software : ASCII Express (communications software)
Apple Writer II (word processing package)

The following disks will be needed: Apple Writer software, data disk (purchase order template), communications program and data disk for sending data, and communications program disk for receiving data. Additional data disks may be desired for storage.

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The macro string we used:

%:aaa%>C%:name1'%!\FL name2,d2!%(\PV%:name1'%^K\H

Command	Action
%:aaa	wait until colon (:) is received then transmit this string (aaa is the password you have chosen)
%>	wait to receive > then send C which tells the Receiving Computer (RC) to prepare to Copy a file.
%:name1	wait to receive : then send name1 which gives RC a name under which it is to save the incoming file (name1 is any legal file name you have selected)
'	sends a carriage return
%!	wait to receive an exclamation point which signals that the RC has received the name
\	the next command is to be carried out by the Sending computer (SC)
FL	send (Forward) the file called name2 (this is any legal file name you have selected)
,D2	name2 is stored on drive 2
!	signals the end of the file name
%(V	wait for the left parenthesis then send the View command
%:	Wait for the colon
name1'	send the name of the file to be viewed (this causes the file to be printed out on the RC's printer)
%^K	wait for a control-K which signals that the RC is finished
\H	SC is to Hang up the phone.

When the sending computer (SC) is booted it will dial the phone number programmed into it. After the receiving computer (RC) answers the phone, it will ask for the password. The last character sent in that request is a colon, "Password:". The SC is directed to wait until it receives that colon and then transmit the password. When the RC receives the password, it is ready to follow the rest of the commands in the macro. When the SC hangs up, the RC waits for more calls.

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FROM: PURCHASE ORDER NO.

TO: Lester Hill Corporation SHIP TO:

DATE ISSUED DATE NEEDED

Stock No.	Description	Quantity	Unit Price

SO. No. _____ by _____ date _____